

## Location Profiling in Cadastre for Property Value Intelligence

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### Introduction

#### Scenario --1

Around twenty two years ago a study team sought my assistance to guide them for visiting the site of devastating river erosion of the Padma, one of the largest rivers of Bangladesh at the Tongibari sub-district only forty kilometers south to the capital city Dhaka. I hear the roaring sound and felt stormy river breeze. The sun was still not prepared to set down. There was no crowd near the river bank. An old woman was sitting there alone. When I approach to her I witnessed that she remained unmoved.

I saw her eyes were full of tears. I could not dare to ask her any question at that moments. After a while I tried to ask her some how on the tragedy caused to her by that time. She thought me as someone to help her and turned her eyes with a mood of hopes. She told the tragic events caused to her in the last couple of days and how she lost her only residential house and property and turned to a helpless beggar over night. She pointed by her finger a long distance where her house was standing some times earlier. I followed her and there was nothing but big moving waves and strong river currents of unlimited water flows of cruel Padma and she fell in deep silence again.

#### Scenario --2

The name the of the island is Bhola, southest district of Bangladesh, surrounded by the rivers Meghna, Elisha, Tetulia and the Bay of Bengal. I served there for several years. A larger part of Mirjakalu bazar, a rich business centre under Burhanuddin, sub-district was fallen into the large river Meghna in the month of april. Parties reported about the sudden fall of property values which became lower than the determined land values based on previous year.

And people became unable to comply with registration requirements and compelled to be reluctant to register there transfer deeds in time as there was no rule or provision to consider such situation. As a result they lost their legal rights and security over their purchased property, the money they spent and the government lost its revenue.



## Background

According to statistics, in developed countries, the value of land and real estates together with mortgages on properties is about 60-65 % of the national asset. The land and property related activities, including property developments, generating about the 30-35 % of the GDP. The value of mortgages on properties in developed countries is 30-35 % of the GDP.

About fifty per cent of the occupation of expanding cities in developing countries is informal, people have no secure tenure (Bathurst Declaration) In these countries it is absolutely essential to improve the security of tenure providing appropriate tools for registration of informal or customary tenure.

The implementation of sustainable development (economy, society, and environment) is also one of the main topics worlds wide in developed and developing countries as well. There have been many changes related to land and properties during the last decade, resulted new challenges to be solved. These changes very much effected the developed, transition and developing countries (András Osskó).

During these years the concepts, principles and definitions of land, land utilization types, land qualities, land suitability classification and land evaluation procedures were already specified but in some circles the notion of a single, overall "land quality" in the sense of health-of-land has come to the fore.

- The total capital we strive to sustain within and between generations consists of separate components:
- The natural capital (the land, the water, the air, genetic material, ecosystems, etc.);
- The human capital (knowledge, science, culture, health, nutrition);
- The institutional capital (schools, universities, research facilities, infrastructure);
- The social capital (democracy, good governance, civil rights, equity, social harmony).



## Philosophy

Philosophers saw that nothing less than the establishment of liberty and the abolition of poverty among population by the confirmation of human laws to the natural order intended by the Creator. They saw that there is but one source on which men can draw for all their material needs and that is land and property as the Wealth Generation Cycle-central to the political economy with value for production, wealth generation, capital accumulation and making money for power( shown in diagram -1) and there is one means by which land can be made to yield to their desires by labor. All real wealth, they therefore saw, is the result or product of the application of labor to land and property.

In order to have value, an object must satisfy some human want, and it must exist in a quantity which is insufficient wholly to satisfy all desire for it. In explaining value, economists emphasize on the cost theories of value and the utility theories as classical theory, derived from Adam Smith, logically developed by Ricardo, and substantially completed by Senior, Carey, John Stuart Mill and Cairnes.

According to this theory, market value is determined by demand and supply, being fixed at the point where the former just equals the latter. Value increases directly with increase in demand, inversely with increase in supply (other conditions remaining the same).



## Property Defined

The property as an institution, when limited to its essential elements, consists in the recognition, in each person, of a right to the exclusive disposal of what he or she have produced by their own exertions, or received, either by gift or by fair agreement, without force or fraud, from those who produced it. The foundation of the whole is, the right of the producers to what they themselves have produced. Private property as an institution does not owe its origin to any of those considerations of utility, which plead for the maintenance of it when established in economic terms, such as "raw material of the earth" and "gift of nature" for land; "industry" for labor, and "valuable qualities" for productive powers.

### Value of Property

In modern scientific economics, the term 'utility' has for the most use of the word value. Another meaning which the term value conveys is the significance of an object to an individual as the indispensable condition of a certain satisfaction.

Value in this sense of the term is frequently called 'subjective value,' to distinguish it from 'objective' or 'exchange' value. Subjective value is of two kinds, 'subjective use value,' where the importance of an object is gauged by the direct satisfaction to be obtained through its consumption, and 'subjective exchange value,' where the importance of an object is gauged by the satisfaction it will yield indirectly, through exchange.



### Real Property And Property Markets

Real property is defined by statute to include land, structures and improvements on land, certain mobile homes and machinery and equipment affixed to the land. The constitutional subclasses of real property and their assessed value percentages are as follows: industrial and commercial property, residential property, farm property, and public utility property. Some public utility property is assessed at the lower industrial and commercial percentage pursuant to law.

A real-estate market is the interaction of individuals who exchange real-property rights for other assets, such as money. Specific real-estate markets are defined on the basis of property type, location, income-producing potential, typical investor characteristics, typical tenant characteristics, or other attributes recognized by those participating in the exchange of real property.

These real estate-related expenditures are directly linked to the price of goods and services in competitive markets. For example, the costs of roofing materials, masonry, architectural plans, and rented scaffolding are determined by the interaction of supply and demand in specific areas and are subject to the influence of social, economic, governmental, and environmental forces.

Totals of real property assessments include assessments of land, structures and improvements along with most mobile homes and machinery and equipment affixed to realty.



## Locational Property Value : Factors and Indicators

### PROPERTY PROFILES

Property Profiles provides a wealth of information useful to understanding a subject property's makeup to research and find properties by address, owner name, legal description or parcel identification number.

Property Profiles returns all pertinent property and owner information for any property. Other reports available include Comparable Market Analysis (CMA), Nearby Neighbors, Subdivision Statistics, Nearby Schools and Businesses, Demographics Sketch Vectors, Aerial Images and Parcel Maps.

Wherever in the world businesses, investors and second home buyers look to acquire property, local jurisdictional laws, procedures and risks must be considered. Most active real estate markets have a system for organizing and recording property purchases; however, those systems vary widely.



## MAJOR INDICATORS OF PROPERTY PROFILING

- |   |   |
|---|---|
| 1. Market Position  | 13. Product Quality   |
| 2. Rental Demand  | 14. Product Suitability--Ability to supply product that matches the market demand |
| 3. Upcoming Supply--Research to mitigate the risk of oversupply             | 15. Property Valuation  |
| 4. Growth Drivers--Infrastructure and development expenditure               | 16. Property Inclusions-- property that meets demand expectations                 |
| 5. Affordability  | 17. Fixed Priced Contract--Contract terms that mitigate unexpected costs          |
| 6. Rental Income  | 18- Minimum Deposit   |
| 7. Property Type  | 19. Settlement Terms--Settlement terms that minimise cash commitments             |
| 8. Quality Tenants--Profiles of quality tenants for the area                | 20- Capped Holding Costs--Contract terms that fix maximum holding costs           |
| 9. Tenant Expectations--Inclusions that attract desirable tenants           | 21. Passive Involvement   |
| 10. Property Management Fees--Local Property Management fee                 | 22. Community Evaluation  |
| 11. Most Desirable Location within the Suburb--Locations to target or avoid | 23. Site Inspection--Personal site inspection---                                  |
| 12. Screening Developers--Identifying quality local developers and builders | 24. Property Design.  |
|   | 25. Client's Expectations   |



## **BENEFITS : Governance, Taxation And Justice**

### **Governance And Its Impact on Property Value**

Law required standard valuation methods for industrial and commercial property based on acquisition cost less straight line depreciation. In the absence of better evidence, fixed rates of allowable depreciation must be used depending on how the property is categorized.

### **Securing Fair Value And Justice By Using Location Profiles**

While the major argument for raising public revenue from land rent and natural resources is because it is equitable and fair, it is also the most efficient method of raising the revenue which is needed for public facilities and services. Land is visible, can't be hidden and its valuation is less intrusive than valuations of income and sales. Taxes on labor and capital cause people to consider alternative options, including working with less effort, which produces less real goods.

### **Adjustments For Use And Location**

Adjustments for additional attributes and deficiencies could be made for each individual site, after the base market value had been estimated by the comparative method. The experience from a comparative city could be borrowed and tested in the local area to verify the results.



### **Land Use and its Locational Value : Valuation and Evaluation**

"Land", the "functions of land", "land evaluation", "land qualities", "sustainability", "resilience", etc. need to be defined carefully to avoid confusion and to assure effective cooperation between international institutions and national planning entities that deal with the assessment of changes in land conditions.

The holistic concept of Land was already recognized in the Framework for Land Evaluation FAO 1995.

Land is the basis for many life support systems, through production of biomass that provides food, fodder, fibre, fuel, timber and other biotic materials for human use, either directly or through animal husbandry including aquaculture and inland and coastal fishery (the production function);

A property is an attribute that already gives a degree of information on the value of the land type; a land quality (or limitation) is a complex attribute of land which acts in a manner distinct from the actions of other land qualities in its influence on the suitability of land for a specified kind of use.



### **Evaluation of Land Qualities**

The many functions of Land:

- Production function
- Biotic environmental function
- Climate-regulative function
- Hydrologic function
- Storage function
- Waste and pollution control function
- Living space function
- Archive or heritage function
- Connective space function

### **Standards for Property Value**

Major IAS and IFRS standards and their application areas are as follow : a. IAS2 applies for Inventories, b. IAS11 applies for Construction Contracts, c. IAS16 applies for Property, Plant and Equipment, d. IAS17 applies for Leases, e. IAS40 applies for Investment Property, f. IAS41 applies for Agriculture and g. IFRS6 applies for Exploration for and Evaluation of Mineral Resources.



## **Property Registration : Central To Property Value Applications**

Registration systems fulfill a good variety of human needs such as legal validation of all types of agreed, documented, signed and executed contracts, documents and deeds of any transaction, statement, terms and conditions for making basis of evidence, delivery of information like certificates, licenses, searches, inspections, from the original documents, reports; preservation and protection of databases, administration and supervision of records and registries, archival security management, geographic and land information (GIS and LIS), like parcels (khatians), cartographic maps (manual or digital), ICT and public sector information (PSI), collection of public revenue e.g., stamp duty, registration fees, gain tax, VAT, local government taxes, court fees, fines etc ( Razzak. Dr. M.A 2008).

The system also includes development issues like sustainable development, sustainable land management (SLM), regulatory reform, land value taxation (LVT), valuation techniques and approaches, assessment, accounts, and determination mechanisms with a set of technological, procedural and technical arrangements to provide appropriate services in practice.

The conceptual framework of land registration includes a set of complex terms, components, and situations such as laws, systems, institutions and activities; such as land revenue, land tenancy, land rights, land valuation, land transfer, land tax, land litigation and land reform etc.



### Land Registration And Information Systems

The evolution of cadastres, LAS, SDIs, and land markets shows that the traditional concept of cadastral parcels representing the built environmental landscape is being replaced by a complex arrangement of over-lapping tenures reflecting a wide range of rights, restrictions and responsibilities, and that a new range of complex commodities, building on this trend is emerging.

### Land Registration In Spatially Enabling Government

For modern governments at all stages of development, one question is how best to integrate these processes, especially to offer them in an Internet enabled e-Government environment. In some jurisdictions, title registries may offer some protection to registered owners and/or mortgagees. In others, purchasers may have to rely on legal opinions based on excerpts from official title records. In all cases, for an investor or mortgagor to have true peace of mind about a property acquisition, a fundamental concern should be to secure "good title."

### E-Government

Technically, digital land-information products offer considerably more possibilities for perfect reproduction and fast, inexpensive and easy distribution. Customers want to be served in a professional way, user-friendly tools, information that is timely, up-to-date, reliable, complete, accurate, relevant, if necessary customised well-integrated with other relevant data sets of other suppliers, good value for money and systems that compatible with the customer's working procedures.



## IMPLEMENTATION , APPLICATIONS AND INNOVATION

### Property Value Database Segments

Property Value Information Systems (PVIS) create successful and functional platforms which is termed as Property Value Intelligence in practice comprises of a set of property value data bases. These are as follow :

- ◆ Market Value Database (MVD)
- ◆ Assessed and Apprised Value Data (AVD)
- ◆ Price Value Database (PVD)
- ◆ Cost Value Data (CVD)
- ◆ Rated Value Databases (RVD)
- ◆ The Real Property Value Database (RPVD)
- ◆ Hope or Future Value Database (HVD)
- ◆ Best And Highest Use Value Database(BUVD)
- ◆ Assumption Value Database (AVD)
- ◆ Alternative Use Value Database (AUVD)
- ◆ Forced Sale Value Database (FSVD)
- ◆ Transaction Costs Database (TCD)
- ◆ Tax Bases Databases (TBD)
- ◆ Synergistic or Marriage Value Database (SVD)
- ◆ Investment Value Database (IVD)
- ◆ Mortgage Lending Value (MLVD) Database
- ◆ Insurable Security Value Database (ISVD)
- ◆ Depreciated Replacement Cost (DRCD)
- ◆ Trading Property Value Database(TPVD)
- ◆ Development Property Value Database(DPVD)
- ◆ The Existing Asset Value Database (EAVD)
- ◆ Green Value Database (GVD)
- ◆ Degraded Property Value Database (DPVD)
- ◆ Added Value Database etc.



### **Integrating Property Profiles Using Geospatial BI with PVI**

A data warehouse is a subject oriented, non-volatile, integrated, time variant collection of data in support of management's decisions. Common functions of business intelligence technologies are reporting, online analytical processing, analytics, data mining, process mining, complex event processing, business performance management, benchmarking, text mining and predictive analytics. What is geospatial data and geospatial analytics? When people refer to geospatial data, they are often describing address-related data (a specific address, point of interest, ZIP code, and so on). This data can be matched to a specific latitude and longitude using a process known as geocoding.

### **Database Deployment Software and Applications**

Organizations store feature data in a structured file format such as Autodesk spatial data file (SDF) or SHP. With SDF, organizations benefit from the power of a spatial database without the cost or management overhead. Then organizations can easily extend the reach of their information by using a web mapping application such as Autodesk Map Guide Enterprise to deliver powerful, easy-to-use online maps and related information to audiences of all sizes.



## **CONCLUSION**

This has been devoted to materialize the vision toward achieving the location based property value information intelligence as an easy and accessible platform for prompt decision making at all levels of public, private, business and economic sectors. Incessant research efforts are also vital to enrich the system in practice. Our pragmatic optimism invites the practitioners' communities to move forward as to find the solutions to put in practice with a shared, consorted and a well communicated network in the near future.

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*THANK YOU  
ALL*

